ASTRONOMICAL SOCIETY OF LONDON.

February 9, 1827. No. I.

Report of the Council of the Society to the seventh Annual General Meeting this Day.

SEVEN years have now elapsed since the formation of this Society: during which period, it must be evident to every intelligent observer, that a considerable progress (assisted, it is hoped, by the exertions of this Society) has been made in the science of Astronomy, not only in our own, but in every other country. The increased number of observatories, and the consequent encouragement which is given to the improvement of astronomical instruments,—the zeal and assiduity, not only of the public observers, but also of many private individuals, who nobly sacrifice a great portion of their time and fortune to this laudable pursuit,—prove that the science is now more generally followed and encouraged than at any former period.

To enable the Society to continue its assistance in preserving and promoting this favourable change, the Council rely on the cordial co-operation of all those members who have the means in their power, of conducing to this grand end. Those even, who have only *small* instruments in their possession, may still do much good, by a careful and judicious use of them: for although every astronomer must admire the vast field that has been opened by the powerful and splendid telescopes of Messrs. Herschel, South, and Struve, and the patience and skilful assiduity of these observers, yet we ought not to lose sight of those innumerable aids which may be rendered to astronomy, by more humble instruments, nor of the assistance that may be afforded to the *physical* and other departments of the science by those who are not possessed of any instrument at all.

In the last Report of the Council it was stated, that a letter had been received from M. Bessel, relative to a plan for a general survey of the heavens, and for making detached charts of the same. The *prospectus* relative to this subject was translated and distributed, not only amongst the members of this Society, but also amongst such other astronomers, as might be supposed desirous of encouraging so useful and important an undertaking. Two applications were made from this country, to the Committee at Berlin, appointed to superintend the distribution of the allotments: but, it is doubtful whether more than *one* of them can be appropriated here, as it is understood that the rest have been, or probably will be, taken up by different astronomers on the continent.

The Council regret that all the various prize questions, that have from time to time been proposed by the Society, still remain unanswered: the period having expired for the determination of the whole of them; except that which relates to the moon's place, which will not terminate till Feb. 1st, in the ensuing year. How far it may be expedient to renew them, or to substitute others, will depend on the views entertained on this subject by their successors in office.

The new tables for computing the Aberration, Precession, and Nutation of 2881 principal fixed stars, together with a catalogue of the same, are now completed, and have been some time in the hands of the public. This important work was first suggested, and the formulæ for the computations were investigated and practically arranged, by F. Baily, Esq. your indefatigable President, who, agreeably to the Regulations of the Society, resigns the chair this day. Much of the time and labour of the computers, engaged in this extensive work, was saved, and the liability to error very much abridged, by the use of printed *skeleton forms*, which he had constructed expressly for their use, from formulæ reduced to the most simple and convenient shape for calculation. The work itself has been brought to a successful termination by the extraordinary diligence, activity, and perseverance, of Lieut. Stratford, of the Royal Navy, one of your Secretaries; who in the midst of his other various avocations and duties, has been unremitting in his attention to promote the progress and secure the accuracy of this highly useful work: and who is entitled to your best and most cordial thanks for such a devotion of his time and labour. In fact, the Council, desirous of expressing their sense of the benefit conferred on the science of Astronomy by this important undertaking, have awarded the gold medal to Mr. Baily: and the silver medal to Lieut. Stratford, for the service rendered by these gentlemen in the promotion and completion of the work. May we hope that some experienced astronomer will now take up this new catalogue, and make a series of observations on *every* star contained therein, whereby we may be enabled to ascertain more correctly the proper motion (if any) that should be attributed to each star: and thus deduce a *Fundamental Catalogue* that may assist astronomers for many years to come. The expense of computing and printing this Catalogue has encroached on the ordinary funds of the Society: and has induced many members to suggest the propriety and advantage of defraying the expense not only of this, but of any similar undertaking by means of a separate subscription amongst the members. Should a measure of this kind be recommended, the Council trust that it will meet with the support of every friend of Science.*

The Council, bearing in mind the objects which it is the wish and desire of the Society more particularly to promote, have also awarded the silver medal to Col. Beaufoy, for his valuable collection

* The subscription was immediately set on foot, and met with very considerable support. The list of subscribers is in the hands of the Secretary, and may be seen by any of the members.—*Sec.*

of observations communicated from time to time to this Society, and more especially those relative to the Eclipses of Jupiter's Satellites. Part of this collection has already been published in the Memoirs of this Society; and the remainder will appear in the ensuing volume. These observations seem to have been made with great care and diligence, and afford another, and a powerful instance, how much the science of astronomy may be benefited by the active exertions of *one* individual. Phenomena of this kind cannot always be observed at the *public* observatories: the state of the weather, or more important avocations, may oftentimes interfere to prevent it. It is in such cases, and in numerous other instances, that *private* observers may render an important benefit to the science by their active co-operations.

These several medals to Mr. Baily, Lieut. Stratford, and Col. Beaufoy, will be presented at a subsequent general meeting of the Society, to be convened for that express purpose.

The past year has been abundant in the discovery of comets; no less than five having been announced at the last meeting of the Society. One of these was discovered by M. Gambart, the celebrated astronomer at Marseilles; who, on computing its elements, found that, in all probability, it would pass over the sun's disc on the morning of the 18th of November. He immediately adopted measures for communicating the result of his calculations to all the astronomers in Europe, in order that they might witness this remarkable appearance. But, unfortunately, the whole of that day was cloudy: and it does not appear that this singular phenomenon was witnessed by any human being. To M. Gambart we are also indebted as one of the discoverers of another comet, which appeared in the month of March; and which has since been found to be *periodical*. This comet had been previously seen by M. Biela, at Josephstadt; and M. Clausen, on computing its elements, ascertained that it was the same as that which was seen in 1772, and again in 1805. It is remarkable that both M. Biela and M. Gambart had, in the mean time, come to the same conclusion, from the elements deduced from their own separate and independent observations; thus confirming the addition of another revolving comet to our system, whose period is about 2461 days, or about twice the period of the celebrated comet of Encke. This new planetary body will make its appearance again about the latter end of the year 1832; and the attention of astronomers will then be naturally directed towards its return. If the comet of 1786 bear the name of Encke, this new revolving comet ought, for a similar reason, to bear the name of that astronomer who may most effectually succeed in investigating the laws by which it is governed. It is but a just tribute of respect to men who, by their assiduity and talent, thus enlarge the bounds of science, and add to that vast mass of facts which are absolutely necessary to enable us to judge of the true system of the universe.

In the last part of the Memoirs of this Society, is a Report from the Committee appointed to examine the telescope whose object-glass was formed of the glass presented to the Society by the late

M. Guinand. The object-glass being finished and approved by the Committee (whose report will be seen in the last volume of the Memoirs), it was thought advisable that it should be offered for sale to any of the members of the Society, that might be disposed to bid for it: and that the proceeds, after the payment of expenses for working the glass, should be transmitted to the family of M. Guinand, for their use and benefit. This has been done: and the object-glass is now in the possession of the Rev. Dr. Pearson, the Treasurer of this Society.

With respect to the finances of the Society, it will appear from the report of the Auditors, which has been read, that there have been elected 11 new Members, and 3 Associates, since the last anniversary; and that the Society now consists of 212 Members, and 32 Associates:—in all 244. At the same time it will be seen, that considerable expenses have been incurred in printing the last volume of the Memoirs: which, however, contains a considerable quantity of matter that must be interesting both to the theoretical and practical astronomer.

Amongst the losses by death, which the Society has sustained in the year just past, the Council have to regret those of three of its distinguished Associates: MM. Bode, Fraunhofer, and Piazzi. The first has been long known, not only as the able conductor of the Ephemeris published annually at Berlin, (a work which, for many years, tended more than any other, to promote the advancement of astronomy, by the circulation of important and useful information, on various branches of the science,) but also as the author of several valuable works conducive to the same end; amongst which, his Catalogue of 17,240 stars, (reduced from the observations of various astronomers), and his charts of the same, may be considered as the most important. He died at the advanced age of 80 years. M. Fraunhofer has long been celebrated as a distinguished optician, and as an artist of the first class. Few of the specimens, however, of his superior talent have reached *this* country; but on the continent, where they are more numerous, their value is highly appreciated.

M. Fraunhofer, though not an astronomer himself, has the strongest of claims to the respect and gratitude of astronomers, in furnishing them with means of discovery, in which the most exquisite skill in point of practical execution was directed by the utmost refinement of theoretical knowledge. He was, in the highest sense of the word, an optician, an original discoverer in the most abstruse and delicate departments of his science, a competent mathematician, an admirable mechanist, and a man of a truly philosophical and scientific turn of mind.

Raised by his extraordinary talents from the lowest station in a manufacturing establishment, to the direction of the optical department of the business in which he originally laboured as an ordinary workman, he applied the whole power of his mind to the perfection of the refracting telescope. Easily mastering the refinements of its theory, he saw with regret, that they were for the most part unavail-

able in practice, for want of precise knowledge of the optical properties of the materials used. This he set about to remedy; and by a series of admirable experiments (of which it is impossible in a report of this nature to give any idea), succeeded in giving to optical determinations the precision of astronomical observations, surpassing in this respect all that had gone before him, except perhaps, his great predecessor, NEWTON. He had, it is true, advantages in these researches (such as neither Newton nor any other experimenter has ever possessed), in a command of apparatus limited only by his own inventive powers. It was in the course of these researches, that he was led to the important discovery of the dark lines which occur in the solar spectrum. In this, indeed, he was in some degree anticipated by an illustrious countryman of our own, to whose powers universal science bears grateful testimony. But it is certain that he had no knowledge of the facts thus previously ascertained, and that he pushed his discovery to a point very far beyond them; being aided in so doing by possessing the happy secret of manufacturing flint glass of perfect homogeneity. Whether he originally invented this process, or procured it from another, this is not the occasion to pronounce; but at least his own distinct assertion, that he brought it to its final state of perfection, and to a certainty of manipulation by his personal investigations, ought not to be doubted. Nor did he suffer the secret to lie idle or useless,—his telescopes are scattered over Europe; and his last splendid performance has already demonstrated, by the results it has afforded, his claims to unbounded admiration as an artist. The mechanism employed in the working of his glasses, his mode of centering and adjusting them, and every other part of his processes (the fabrication of his glass only excepted), has been witnessed by more than one member of this Society. It bore the stamp of all his works—simplicity, regularity, and incomparable neatness and precision.

Of his other valuable experiments and discoveries in physical optics, connected with the interferences of the rays of light, (in all of which, though pushed far in advance of the actual state of knowledge, he appears to have relied entirely on his own resources, and drawn little from others,) as less connected with astronomy, it is not necessary here to speak. He died at a premature age: his death being accelerated, it is said, by the unwholesome nature of the processes employed in his glass-house; leaving behind him a reputation rarely if ever attained by one so young.

Of M. Piazzi and his labours it will also be interesting to the Society to conceive a concise account, as this distinguished individual furnishes another example, in addition to the many already upon record, of the power of genius to deliver a man from pursuits for which he had no taste, and to carry him successfully through others, to promote which he was richly qualified. Piazzi was born at Ponte in the Valteline, July 16th, 1746, and died at Naples, July 22d, 1826. Early in life he was devoted to a religious order, denominated the *Théatins*, at Milan. But, after various changes, he, in 1780, accepted the appointment of Professor of the Higher

Mathematics in the Academy of Palermo ; and from that time, entirely devoted himself to science.

In a few years he obtained the confidence and favour of the Prince of Caramanico, viceroy of Sicily, by whose permission and assistance he founded an observatory at Palermo. With a view to open an intercourse with astronomers, and to obtain valuable instruments for his observatory, he visited England, where he formed an intimacy with Maskelyne, Herschel, Vince, and Ramsden. From the last of these he obtained some very excellent instruments, and, amongst the rest, the Altitude and Azimuth instrument with which his principal observations were made. From this time Piazzi cherished a warm attachment both to the English and to their language ; and to the latest period of his life, continued to evince the same esteem.

While he was in England, Piazzi observed at Greenwich, in conjunction with Maskelyne, the solar eclipse of June 3d, 1788. He also collected the corresponding observations of eighteen different astronomers in various parts of Europe, and deduced from them the differences in longitude of the several observatories from that of Greenwich. The results he published in the *Philosophical Transactions* for 1786 (vol. lxxix.) ; and the circumstance is here recorded, as this paper is understood to be M. Piazzi's earliest production as an astronomer.

In 1789 he commenced with great activity his labours in his new observatory, then the most southern which existed in Europe ; that at Malta having been recently destroyed by fire.

On the 1st of January, 1801, he discovered the planet *Ceres*. The principal circumstances of that discovery, being well known to astronomers, need not be detailed here. But it is due to the character of this distinguished individual, to state, that when the king of Naples announced his intention of perpetuating the event, by the circulation of a gold medal among European observers, Piazzi, whose modesty and zeal were equal to his merit, requested the monarch to assign the proposed value of the medals to the purchase of an *equatorial*, which he thought was greatly needed in his observatory.

In 1803 he published the result of a labour of twelve years, undertaken with a view to determine *the mean position of the principal stars ;* for this work he received the medal from the Royal Academy of Sciences at Paris.

In 1814 was published M. Piazzi's *New Catalogue*, from which it appeared that this indefatigable astronomer had actually extended his researches to 7646 stars !

Early in 1817 M. Piazzi published his *Lessons on Astronomy*, and the same year he was called to Naples, to put into activity the new observatory established on the heights of *Capo di Monte*. Cacciatore (now also one of the Associates of the Society,) has from that time taken the charge of the observatory at Palermo ; and by his zeal and assiduity is emulating the conduct of his predecessor.

The subsequent labours of this indefatigable astronomer are as

universally known as they are highly appreciated throughout Europe. The grand work, however, to which we have already adverted (*The Catalogue of* 7646 *stars*,) will ever remain a monument of his superior activity and perseverance, as long as the science endures. This important work far exceeds every thing of the kind that has preceded it; and shews, more powerfully than words can express, what may be effected by the talents and assiduity of *one* individual.

The will of this eminent astronomer furnishes a new proof of his cordial desire to contribute perpetually to the promotion of his favourite science. He has bequeathed his library and all his instruments to the observatory at Palermo; and has assigned a liberal annuity to be devoted in succession to the instruction of young men who evince a marked partiality for this interesting department of knowledge.

The Council trust that the several members of this Society require no additional excitement to promote and advance the cause in which they have so laudably embarked. They should recollect, however, that without their cordial co-operation and assistance, the labours and efforts of the Council will be in vain. For the *Council* are merely the officers of the Society, and can only collect and arrange the subjects that present themselves. To the *individuals* of the Society it more properly belongs to furnish those subjects which may tend to the improvement of the science, either theoretically or practically. The Council have, indeed, in some of their former Reports, ventured to suggest several points as more particularly worthy of the attention of the members; but it must be obvious to every one, that these are a *few* only of the desiderata in astronomy; and that many others will suggest themselves to every skilful and intelligent observer.

The meeting then proceeded to the election of Officers for the ensuing year, when the following List was delivered in by the scrutineers: viz.

President: J. F. W. Herschel, Esq. M.A. *Sec.* R.S. *Lond.* F.R.S. *Ed.* & M.R.I.A.—*Vice-Presidents:* Capt. F. Beaufort, R.N. F.R.S.; Lieut.-Gen. Sir T. M. Brisbane, K.C.B. F.R.S. L. & E.; Henry Thomas Colebrooke, Esq. F.R.S. L. & E. F.L.S. & G.S.; James South, Esq. F.R.S. & L.S.—*Treasurer*: Rev. William Pearson, L.L.D. F.R.S.—*Secretaries:* Olinthus G. Gregory, LL.D. *Prof. Math. Roy. Mil. Acad. Wolwich;* Lieut. W. S. Stratford, R.N.—*Foreign Secretary:* Charles Babbage, Esq. M.A. F.R.S. L. & E. & M.R.I.A.—*Council:* Francis Baily, Esq. F.R.S. L.S. & G.S. & M.R.I.A.; Colonel Mark Beaufoy, F.R.S. & L.S.; Lieut.-Col. Thomas Colby, R.E. LL.D. & F.R.S. L. & E.; Capt. George Everest; Davies Gilbert, Esq. M.P. V.P.R.S. F.L.S. & G.S.; Benjamin Gompertz, Esq. F.R.S.; Stephen Groombridge, Esq. F.R.S.; James Horsburgh, Esq. F.R.S.; Hon. Lord Oxmantown; Edward Riddle, Esq.

J. Moyes, Castle Street, Leicester Square.